

# Claims

[c1] What is claimed is:

1. A symmetric electrical connection system for connecting components of a first component set and for connecting components of a second component set, wherein the first component set includes a first component and a third component, the second component set includes a second component and a fourth component, and the symmetric electrical connection system includes a first layer, a second layer, the symmetric electrical connection system comprising:

a first conducting wire set for connecting the first component at a first node to the third component at a third node, the first conducting wire set comprising:

a first conducting wire installed in the first layer and electrically connected between the first node and an eighth node;

a second conducting wire installed in the second layer and electrically connected between the first node and a sixth node;

a third conducting wire installed in the first layer and electrically connected between the third node and the sixth node; and

a fourth conducting wire installed in the second layer and electrically connected between the third node and the eighth node;

wherein the first conducting wire and the third conducting wire are symmetric with respect to a symmetry point, and the second conducting wire and the fourth conducting wire are symmetric with respect to the symmetry point;

a second conducting wire set for connecting the second component at a second node to the fourth component at a fourth node, the second conducting wire set comprising:

a fifth conducting wire installed in the first layer and electrically connected between the second node and a fifth node;

a sixth conducting wire installed in the second layer and electrically connected between the second node and a seventh node;

a seventh conducting wire installed in the first layer and electrically connected between the fourth node and the seventh node; and

an eighth conducting wire installed in the second layer and electrically connected between the fourth node and the fifth node;

wherein the fifth conducting wire and the seventh conducting wire are symmetric with respect to the symmetry

point, and the sixth conducting wire and the eighth conducting wire are symmetric with respect to the symmetry point;

wherein an equivalent impedance of the first conducting wire set is equal to an equivalent impedance of the second conducting wire set.

- [c2] 2.The system of claim 1, further comprising an insulation layer between the first layer and the second layer.
- [c3] 3.The system of claim 2, wherein the conducting wires installed in the first layer are electrically connected with the conducting wires installed in the second layer using a plurality of conducting vias.
- [c4] 4.The system of claim 1, wherein the system is installed on a printed circuit board.
- [c5] 5.The system of claim 1, wherein the system is installed in an integrated circuit.
- [c6] 6.The system of claim 1, wherein the first component and the second component are substantially equivalent, and the third component and the fourth component are substantially equivalent.
- [c7] 7.The system of claim 6, wherein the first component, the second component, the third component, and the fourth

component are substantially equivalent.

[c8] 8. The system of claim 1, wherein the first conducting wire set and the second conducting wire set are crossed each other and electrically insulated.

[c9] 9. A symmetric electrical connection system for connecting a first component at a first node to a second component at a third node, wherein the symmetric electrical connection system includes a first layer and a second layer, the symmetric electrical connection system comprising:

a first conducting wire installed in the first layer and electrically connected between the first node and a second node;

a second conducting wire installed in the second layer and electrically connected between the first node and a fourth node;

a third conducting wire installed in the first layer and electrically connected between the third node and the fourth node; and

a fourth conducting wire installed in the second layer and electrically connected between the third node and the second node respectively;

wherein the first conducting wire and the third conducting wire are symmetric with respect to a symmetry point, and the second conducting wire and the fourth conduct-

ing wire are symmetric with respect to the symmetry point.

- [c10] 10.The system of claim 9, further comprising an insulation layer between the first layer and the second layer.
- [c11] 11.The system of claim 10, wherein the conducting wires installed in the first layer are electrically connected with the conducting wires installed in the second layer using a plurality of conducting vias.
- [c12] 12.The system of claim 9, wherein the system is installed on a printed circuit board.
- [c13] 13.The system of claim 9, wherein the system is installed in an integrated circuit.
- [c14] 14.The system of claim 9, wherein the first component and the second component are substantially equivalent.